

JG10 Rec'd PCT/PTO 07 JAN 2002

FORM PTO-1390 US DEPARTMENT OF COMMERCE REV. 5-93PATENT AND TRADEMARK OFFICE <b>TRANSMITTAL LETTER TO THE UNITED STATES          DESIGNATED/ELECTED OFFICE (DO/EO/US)          CONCERNING A FILING UNDER 35 U.S.C. 371</b>		ATTORNEYS DOCKET NUMBER <b>P01,0563</b> U.S. APPLICATION NO. (if known, see 37 CFR 1.5) <b>10/030258</b>
INTERNATIONAL APPLICATION NO. <b>PCT/EP00/06273</b>	INTERNATIONAL FILING DATE <b>04 JULY 2000</b>	PRIORITY DATE CLAIMED <b>06 JULY 1999</b>
TITLE OF INVENTION <b>METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION FACILITIES IN PACKET-ORIENTED TRANSMISSION</b>		
APPLICANT(S) FOR DO/EO/US <b>Joachim CHARZINSKI</b>		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)). a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input checked="" type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <b>Items 11. to 16. below concern other document(s) or information included:</b> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report, 04 References). 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. <b>(SEE ATTACHED ENVELOPE)</b> 13. <input checked="" type="checkbox"/> Amendment "A" Prior to Action and Appendix "A". <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input checked="" type="checkbox"/> A substitute specification and substitute specification mark-up. 15. <input checked="" type="checkbox"/> A change of address letter attached to the Declaration. 16. <input checked="" type="checkbox"/> Other items or information: a. <input checked="" type="checkbox"/> Submission of Drawings, 1 sheet, Figures 1-2. b. <input checked="" type="checkbox"/> EXPRESS MAIL #EL 843743047 US dated January 7, 2001		

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5) <div style="font-size: 2em; font-weight: bold; margin-left: 100px;">107030258</div>		INTERNATIONAL APPLICATION NO. <b>PCT/EP00/06273</b>		ATTORNEY'S DOCKET NUMBER <b>P01,0563</b>	
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17. <input checked="" type="checkbox"/> The following fees are submitted:  <b>BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):</b> Search Report has been prepared by the EPO or JPO \$890.00  International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) \$710.00  No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$740.00  Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$1040.00  International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 100.00  <div style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></div>				CALCULATIONS		PTO USE ONLY	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).				<div style="border: 1px solid black; height: 150px;"></div>			
Claims	Number Filed	Number Extra	Rate				
Total Claims	06 - 20 =	0	X \$ 18.00	\$			
Independent Claims	01 - 3 =	0	X \$ 84.00	\$			
Multiple Dependent Claims			\$280.00 +	\$			
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 890.00			
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)				\$			
<b>SUBTOTAL =</b>				\$ 890.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				\$			
<b>TOTAL NATIONAL FEE =</b>				\$ 890.00			
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property +							
<b>TOTAL FEES ENCLOSED =</b>				\$ 890.00			
				Amount to be refunded	\$		
				charged	\$		

a. ☒ A check in the amount of \$ 890.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-1519. **A duplicate copy of this sheet is enclosed.**

NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

**SEND ALL CORRESPONDENCE TO:**

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BOX PCT  
IN THE UNITED STATES DESIGNATED/ELECTED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY--CHAPTER II

**PRELIMINARY AMENDMENT A**  
**PRIOR TO ACTION**

5  
APPLICANT(S): Joachim CHARZINSKI  
ATTORNEY DOCKET NO.: P01,0563  
INTERNATIONAL APPLICATION NO: PCT/EP00/06273  
INTERNATIONAL FILING DATE: 04 JULY 2000  
INVENTION: METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION  
FACILITIES IN PACKET-ORIENTED TRANSMISSION

10 Assistant Commissioner for Patents,  
Washington, D. C. 20231

Sir:

15 Applicants herewith amend the above-referenced PCT application, and  
request entry of the Amendment prior to examination on the United States  
Examination Phase.

**IN THE CLAIMS:**

On substitute page 6:

replace line 1 with --WHAT IS CLAIMED IS:--;

20 Please replace original claims 1-6 with the following rewritten claims 1-6,  
referring to the mark-ups in Appendix A.

1. (Amended) A method for the switchover to standby of transmission facilities  
in packet-oriented transmission, comprising:

25 transmitting a multiplicity of packets belonging to different connections in  
accordance with an Internet Protocol (IP packets) via at least one of a transmission

facility and a redundant transmission facility arranged redundantly to the transmission facility;

including a prioritization information item with each packet in a part of the packet header;

5 conducting a packet either via the transmission facility or the redundant transmission facility, as determined by the prioritization information item; and

conducting a packet determined by the prioritization information item for the transmission facility to the redundant transmission facility when there is a disturbance of the transmission facility.

10

2. (Amended) The method as claimed in claim 1, wherein the prioritization information item is included in the TOS field of the packet header defined in the differentiated services concept.

15

3. (Amended) The method as claimed in claim 1, wherein only the packets with a lower priority are conducted via the redundant transmission facility.

4. (Amended) The method as claimed in claim 1, further comprising:  
discarding packets with a lower priority in the switchover to standby case.

20

5. (Amended) The method as claimed in claim 1, further comprising:  
changing the prioritization based on a capacity utilization determination of the transmission facility.

25

6. (Amended) The method as claimed in claim 1, wherein the transmission facility and redundant transmission facility are constructed as junction lines.

### **REMARKS**

30 The present Amendment revises the specification and claims to conform to United States patent practice, before examination of the present PCT application in the United States National Examination Phase. Pursuant to 37 CFR 1.125 (b),

applicants have concurrently submitted a substitute specification, excluding the  
claims, and provided a marked-up copy. All of the changes are editorial and  
applicant believes no new matter is added thereby. The amendment, addition,  
and/or cancellation of claims is not intended to be a surrender of any of the subject  
5 matter of those claims.

Early examination on the merits is respectfully requested.

Submitted by,

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## Appendix A

### Mark Ups for Claim Amendments

changing the prioritization [~~can be changed as determined by the~~]based on  
a capacity utilization determination of the transmission facility[~~(L1)~~].

- 5 6. (Amended) The method as claimed in [~~one of the preceding claims,~~  
characterized in that]claim 1, wherein the transmission [~~facilities~~]facility and  
redundant transmission facility are constructed as junction lines[~~(L1, L2)~~].

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## Description:

Method for the switchover to standby of transmission facilities in packet-oriented transmission.

5

The invention relates to a method according to the preamble of claim 1.

To be able to transmit information between a transmitting and receiving facility, duplicated transmission facilities are provided in the state of the art. As a rule, these are constructed as junction lines. In this arrangement, the information is transmitted via only one of these junction lines (active junction line) as a rule, whereas the remaining junction line is arranged as redundant junction line. If the active junction line fails, the information is transmitted via the redundant junction line. This procedure ensures that the information can be reliably transmitted even if one junction line fails.

This general concept is also applied in the transportation of packet-oriented traffic. As a rule, however, no traffic, or only little traffic, is transmitted via the redundantly arranged junction line, so that it is possible to switch over without losses at any time in the case of a switchover to standby. As a result, however, the transmission capacity is more or less unused on the redundantly arranged junction line. Such a situation must be avoided, particularly for packets which are transmitted in accordance with an Internet Protocol (IP packets).

The invention is based on the object of demonstrating an approach of how a redundancy of transmission facilities can be made efficient even with IP traffic



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without having to accept restrictions in the transmission capacity.

Based on the preamble of claim 1, the invention is achieved by the features specified in the characterizing clause.

5 The advantageous feature of the invention is, in particular, the use of a prioritization information item in the TOS field of a packet. This is associated with the advantage that packets with higher priority are supplied to the active junction line and packets with lower priority are supplied to the redundant junction line. In the case of a switchover to standby, the packets with  
10 higher priority are transmitted via the redundant junction line, displacing the packets with lower priority. This is associated with the advantage that there is always redundancy and the transmission capacity on the redundant junction line can be fully utilized in error-free operation.

15

Advantageous further developments of the invention are specified in the subclaims.

20 The invention will be explained in greater detail in the text which follows, referring to an exemplary embodiment, in which:

FIG. 1 shows a rigid allocation of the IP traffic to the junction lines as determined by the TOS bits,

25 FIG. 2 shows an adaptive allocation of the IP traffic.

FIG. 1 shows a configuration in which the method according to the invention is executed. According to this, a junction line  $L_0$  is disclosed via which the information is transmitted in packets.  
30 According to the present exemplary embodiment, the packets are constructed as packets which are transmitted in

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accordance with an Internet Protocol (IP packets). The IP packets are supplied to a filtering device F via the



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within the concept of "Differentiated Services" for including a prioritization information item

with IP packets. In case of an overload, the IP packets with lower priority are then discarded, for example due to this information item.

5 According to the invention, it is then provided to distribute the individual IP packets to buffers P<sub>1</sub>, P<sub>2</sub> by evaluating the TOS field. The evaluation is done in the filtering device F and is performed by means of a predeterminable threshold value. This means that if the value stored in the TOS field is greater than  
10 this predetermined threshold value, this IP packet is to be considered as having a higher priority than those IP packets having a value below this threshold value.

As a result of the evaluation, a distinction is thus made between  
15 IP packets with higher priority and IP packets with lower  
priority. The IP packets with higher priority are conducted via  
junction line  $L_1$ , whereas the IP packets with lower priority are  
supplied to junction line  $L_2$ . This then also provides an indirect  
prioritization of the junction lines  $L_1$ ,  $L_2$ . In the case of a  
20 fault, only those IP packets are thus forwarded which are to be  
considered as having higher priority. The IP packets with lower  
priority are discarded.

In Fig. 1, the IP packets are distributed to the two junction  
25 lines  $L_1$ ,  $L_2$  by means of a rigid allocation. A further development  
of the method can be seen in

Fig. 2. According to this, an adaptive method is provided here. Thus, junction line  $L_1$  is supplied with exactly such a number of IP packets with higher priority so that a predetermined target capacity utilization is achieved on this junction line. The IP packets with lower priority are conducted to junction line  $L_2$ . In the case of a switchover due to a fault in junction line  $L_1$ , they are then lost.

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The device designated by ST in Fig. 2 is intended for controlling these processes. The threshold value is here set in accordance with the determination of the capacity utilization of junction line  $L_1$ ,

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for example by means of the filling level of the corresponding queue.



## Patent claims

1. A method for the switchover to standby of transmission facilities in packet-oriented transmission, with a multiplicity of packets belonging to different connections, which are transmitted in accordance with an Internet Protocol (IP packets) and which are transmitted via a transmission facility ( $L_1$ ) and possibly a transmission facility ( $L_2$ ) arranged redundantly thereto, a prioritization information item being included with each packet in a part of the packet header (TOS), characterized in that the relevant packet is conducted either via the transmission facility ( $L_1$ ) or the transmission facility ( $L_2$ ) arranged redundantly thereto, as determined by the prioritization information item, and in that in the case of disturbances of the transmission facility ( $L_1$ ), the packets to be conducted via this facility are conducted via the redundantly arranged transmission facility ( $L_2$ ).
2. The method as claimed in claim 1, characterized in that the part of the packet header in which the prioritization information item is included is the TOS field defined in the differentiated services concept.
3. The method as claimed in claim 1, 2, characterized in that only the packets with lower priority are conducted via the redundantly arranged transmission facility ( $L_2$ ).
4. The method as claimed in one of the preceding claims, characterized in that the packets with

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lower priority are discarded in the switchover to standby case.

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5. The method as claimed in one of the preceding claims, characterized in that the prioritization can be changed as determined by the capacity utilization of the transmission facility ( $L_1$ ).

5

6. The method as claimed in one of the preceding claims, characterized in that the transmission facilities are constructed as junction lines ( $L_1$ ,  $L_2$ ).

# Abstract

Method for the switchover to standby of transmission facilities in packet-oriented transmission.

In the prior art, information is transmitted via redundant junction lines. This concept cannot be easily applied to the transmission of IP packets. According to the invention, it is provided to use the prioritization information item included in the TOS field with each IP packet for conducting the relevant IP packet either to the active junction line or to the redundant junction line. In the case of a disturbance, the system then switches to the redundant junction line where the IP packets with high priority displace the IP packets with low priority.

FIG. 1

# SPECIFICATION

## TITLE

### METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION FACILITIES IN PACKET-ORIENTED TRANSMISSION

#### 5 BACKGROUND OF THE INVENTION

##### FIELD OF THE INVENTION

[0001] The invention relates to a method for the switchover to standby of transmission facilities in packet-oriented transmission.

##### DESCRIPTION OF THE RELATED ART

10 [0002] To be able to transmit information between a transmitting and receiving facility, it is known to utilize duplicated transmission facilities. As a rule, these are constructed as junction lines. In this arrangement, the information is transmitted via only one of these junction lines (an active junction line) as a rule, whereas the remaining junction line is arranged as a redundant junction line. If the active junction  
15 line fails, the information is transmitted via the redundant junction line. This procedure ensures that the information can be reliably transmitted even if one junction line fails.

[0003] This general concept is also applied in the transportation of packet-oriented traffic. As a rule, however, no traffic, or only little traffic, is transmitted via  
20 the redundantly arranged junction line, so that it is possible to switch over without losses at any time in the case of a switchover to standby. As a result, however, the transmission capacity is more or less unused on the redundantly arranged junction line. Such a situation must be avoided, particularly for packets which are transmitted in accordance with an Internet Protocol (IP packets).

#### 25 SUMMARY OF THE INVENTION

[0004] The invention is based on the object of providing an approach for how a redundancy of transmission facilities can be made efficient even with IP traffic without having to accept restrictions in the transmission capacity. This is achieved by conducting a packet either via a transmission facility or a redundant transmission  
30 facility, as determined by a prioritization information item and conducting a packet determined by the prioritization information item for the transmission facility to the

redundant transmission facility when there is a disturbance of the transmission facility.

[0005] The advantageous feature of the invention is, in particular, the use of a prioritization information item in the TOS field of a packet, because packets with higher priority can be supplied to the active junction line and packets with lower priority can be supplied to the redundant junction line. In the case of a switchover to standby, the packets with higher priority are transmitted via the redundant junction line, displacing the packets with lower priority. This is advantageous because there is always redundancy and the transmission capacity on the redundant junction line can be fully utilized in an error-free operation.

#### DESCRIPTION OF THE DRAWINGS

[0006] The invention will be explained in greater detail in the text which follows, referring to an exemplary embodiment provided in the Figures.

Figure 1 is a block diagram showing a rigid allocation of the IP traffic to the junction lines as determined by the TOS bits; and

Figure 2 is a block diagram showing an adaptive allocation of the IP traffic.

#### DETAILED DESCRIPTION OF THE INVENTION

[0007] FIG. 1 shows a configuration in which a method according to the invention is executed. According the method, a junction line L0 is disclosed via which information is transmitted in packets. According to the present exemplary embodiment, the packets are constructed as packets which are transmitted in accordance with an Internet Protocol (IP packets). The IP packets are supplied to a filtering device F via the junction line L0. In this case, a selection is made by way of a marking (described below in greater detail) about which of the subsequent junction lines L1, L2 the relevant IP packet is to be supplied to. Once the selection has been made, the relevant IP packet is first written into a buffer P1 or P2, respectively, allocated to the junction line. The buffers P1 and P2 are associated with a switching device S via which the IP packets are supplied to the junction lines L1, L2.

According to the present exemplary embodiment, junction line L1 is intended to be the active junction line and junction line L2 is intended to be the redundant junction line.

[0008] The switching device S is driven by a controller not shown in greater detail in Figure 1. According to the present exemplary embodiment, the switching device S is set in such a manner that the IP packets stored in the upper buffer P1 are supplied to junction line L1 and the IP packets stored in the lower buffer P2 are supplied to junction line L2. If then the active junction line L1 fails, the switching device S is driven in such a manner that the connections of the buffer P1 to junction line L1 and of the buffer P2 to junction line L2 are broken and, instead, a connection between buffer P1 and junction line L2 is established. This means that the IP packets stored in buffer P1 are now transmitted via junction line L2. The IP packets stored in buffer P2 are discarded.

[0009] The IP packets have an information part I and a packet header PK. The packet header PK is used for accommodating the destination address and control information, among other things. As a part of this control information, a field TOS is provided which has a width of 8 bits. In the prior art, this field is used within the concept of "Differentiated Services" for including a prioritization information item with IP packets. In case of an overload, the IP packets with lower priority are then discarded, for example, due to this information item.

[0010] The invention distributes the individual IP packets to buffers P1, P2 by evaluating the TOS field. The evaluation is done in the filtering device F and is performed using a predeterminable threshold value. This means that if the value stored in the TOS field is greater than this predetermined threshold value, this IP packet is to be considered as having a higher priority than those IP packets having a value below this threshold value.

[0011] As a result of the evaluation, a distinction is thus made between IP packets with higher priority and IP packets with lower priority. The IP packets with higher priority are conducted via junction line L1, whereas the IP packets with lower priority are supplied to junction line L2. This then also provides an indirect prioritization of the junction lines L1, L2. In the case of a fault, only those IP packets are thus forwarded which are to be considered as having higher priority. The IP packets with lower priority are discarded. In Fig. 1, the IP packets are distributed to the two junction lines L1, L2 by way of a rigid allocation.

[0013] The above-described method is illustrative of the principles of the present invention. Numerous modifications and adaptations will be readily apparent to those skilled in this art without departing from the spirit and scope of the present invention.



## ABSTRACT

[0014] In the prior art, information is transmitted via redundant junction lines. This concept cannot be easily applied to the transmission of IP packets. The invention provides for use of the prioritization information item included in the TOS field with each IP packet for conducting the relevant IP packet either to the active junction line or to the redundant junction line. In the case of a disturbance, the system then switches to the redundant junction line where the IP packets with high priority displace the IP packets with low priority.

[Description]SPECIFICATION

TITLE

METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION  
FACILITIES IN PACKET-ORIENTED TRANSMISSION.

5

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

**[0001]** ~~[Method]~~The invention relates to a method for the switchover to standby of transmission facilities in packet-oriented transmission.

10 ~~[The invention relates to a method]~~~~[- according to the preamble of claim 1.]~~

DESCRIPTION OF THE RELATED ART

**[0002]** To be able to transmit information between a transmitting and receiving facility, it is known to utilize duplicated transmission facilities~~[- are provided in the state of the art]~~. As a rule, these are constructed as junction lines. In this  
15 arrangement, the information is transmitted via only one of these junction lines (an active junction line) as a rule, whereas the remaining junction line is arranged as a redundant junction line. If the active junction line fails, the information is transmitted via the redundant junction line. This procedure ensures that the information can be reliably transmitted even if one junction line fails.

20 **[0003]** This general concept is also applied in the transportation of packet-oriented traffic. As a rule, however, no traffic, or only little traffic, is transmitted via the redundantly arranged junction line, so that it is possible to switch over without losses at any time in the case of a switchover to standby. As a result, however, the transmission capacity is more or less unused on the redundantly arranged junction  
25 line. Such a situation must be avoided, particularly for packets which are transmitted in accordance with an Internet Protocol (IP packets).

SUMMARY OF THE INVENTION

**[0004]** The invention is based on the object of ~~[demonstrating]~~providing an approach ~~[ef]~~for how a redundancy of transmission facilities can be made efficient  
30 even with IP traffic without having to accept restrictions in the transmission capacity.

**[0005]** The advantageous feature of the invention is, in particular, the use of a [prioritization]**prioritization** information item in the TOS field of a packet[—This is associated with the advantage that], **because** packets with higher priority [are]**can** **be** supplied to the active junction line and packets with lower priority [are]**can be** supplied to the redundant junction line. In the case of a switchover to standby, the packets with higher priority are transmitted via the redundant junction line, displacing the packets with lower priority. This is [associated with the advantage that]**advantageous because** there is always redundancy and the transmission capacity on the redundant junction line can be fully utilized in **an** error-free operation.

## DESCRIPTION OF THE DRAWINGS

[FIG.] **Figure [2]2** [shows] **is a block diagram showing** an adaptive allocation of the IP traffic.

- 2 - MARK UP SUBSTITUTE SPECIFICATION

## DETAILED DESCRIPTION OF THE INVENTION

**[0007] FIG. 1 shows a configuration in which the method according to the invention is executed. According to this method, a junction line L0 is**

disclosed via which the information is transmitted in packets. According to

the present exemplary embodiment, the packets are constructed as packets

which are transmitted in accordance with an Internet Protocol (IP packets). The

IP packets are supplied to a filtering device F via the junction line L0. In this

case, a selection is made by ~~[means]~~**way** of a marking (~~still to be~~

~~specified~~**described below** in greater detail[~~-later~~]) about which of the subsequent

junction lines L1, L2 the relevant IP packet is to be supplied to. Once the selection

has been made, the relevant IP packet is first written into a buffer P1 or P2,

respectively, allocated to the junction line. The buffers P1 and P2 are associated with

a switching device S via which the IP packets are supplied to the junction lines L1,

L2. According to the present exemplary embodiment, junction line L1 is intended to

be the active junction line and junction line L2 is intended to be the redundant

junction line.

**[0008]** The switching device S is driven by a controller not shown in greater detail

in Figure 1. According to the present exemplary embodiment, the switching device S

is set in such a manner that the IP packets stored in the upper buffer P1 are supplied

to junction line L1 and the IP packets stored in the lower buffer P2 are supplied to

junction line L2. If then the active junction line L1 fails, the switching device S is

driven in such a manner that the connections of the buffer P1 to junction line L1 and

of the buffer P2 to junction line L2 are broken and, instead, a connection between

buffer P1 and junction line L2 is established. This means that the IP packets stored

in buffer P1 are now transmitted via junction line L2. The IP packets stored in buffer

P2 are discarded.

**[0009]** The IP packets have an information part I and a packet header PK. The

packet header PK is used for accommodating the destination address and control

information, among other things. As a part of this control information, a field TOS is

provided which has a width of 8 bits. In the prior art, this field is used within the

concept of "Differentiated Services" for including a prioritization information item

with IP packets. In case of an overload, the IP packets with lower priority are then discarded, for example, due to this information item.

~~[with IP packets. In case of an overload, the IP packets with lower priority are then discarded, for example][due to this information item.]~~

5 **[0010]** ~~[According to the]~~**The** invention~~[, it is then provided to distribute]~~  
distributes the individual IP packets to buffers P1, P2 by evaluating the TOS field.  
 The evaluation is done in the filtering device F and is performed ~~[by means of]~~**using**  
 a predeterminable threshold value. This means that if the value stored in the TOS  
 10 field is greater than this predetermined threshold value, this IP packet is to be  
 considered as having a higher priority than those IP packets having a value below  
 this threshold value.

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 packets with higher priority and IP packets with lower priority. The IP packets with  
 higher priority are conducted via junction line L1, whereas the IP packets with lower  
 15 priority are supplied to junction line L2. This then also provides an indirect  
 prioritization of the junction lines L1, L2. In the case of a fault, only those IP packets  
 are thus forwarded which are to be considered as having higher priority. The IP  
 packets with lower priority are discarded. In Fig. 1, the IP packets are distributed  
 to the two junction lines L1, L2 by ~~means of a rigid allocation. A further~~  
 20 ~~development of the method can be seen in~~ way of a rigid allocation.

~~[In Fig. 1, the IP packets are distributed to the two junction lines L1, L2 by][means of  
 a rigid allocation. A further development of the method can be seen in]~~

**[0012]** A further development of the method can be seen in Fig. 2. According  
 25 to this variation, an adaptive method is provided~~[here]~~. Thus, junction line L1 is  
 supplied with exactly such a number of IP packets with higher priority so that a  
 predetermined target capacity utilization is achieved on this junction line. The IP  
 packets with lower priority are conducted to junction line L2. In the case of a  
 switchover due to a fault in junction line L1, ~~[they]~~**the lower priority IP**  
 30 **packets** are then lost. The device designated by ST in Fig. 2 is intended for  
 controlling these processes. The threshold value is ~~[here]~~set in accordance with the  
 determination of the capacity utilization of junction line L1,



[Abstract]

~~[Method for the switchover to standby of transmission facilities in packet-oriented transmission.]~~**ABSTRACT**

- 5 In the prior art, information is transmitted via redundant junction lines. This concept cannot be easily applied to the transmission of IP packets. ~~[According to the]~~**The** invention~~[, it is provided to]~~**provides for** use **of** the prioritization information item included in the TOS field with each IP packet for conducting the relevant IP packet either to the active junction line or to the redundant junction line. In the case of a
- 10 disturbance, the system then switches to the redundant junction line where the IP packets with high priority displace the IP packets with low priority.

[FIG. 1]

## **SUBMISSION OF DRAWINGS**

**INVENTION: METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION FACILITIES IN PACKET-ORIENTED TRANSMISSION**

**CUSTOMER NUMBER 26574**



1/1

FIG 1

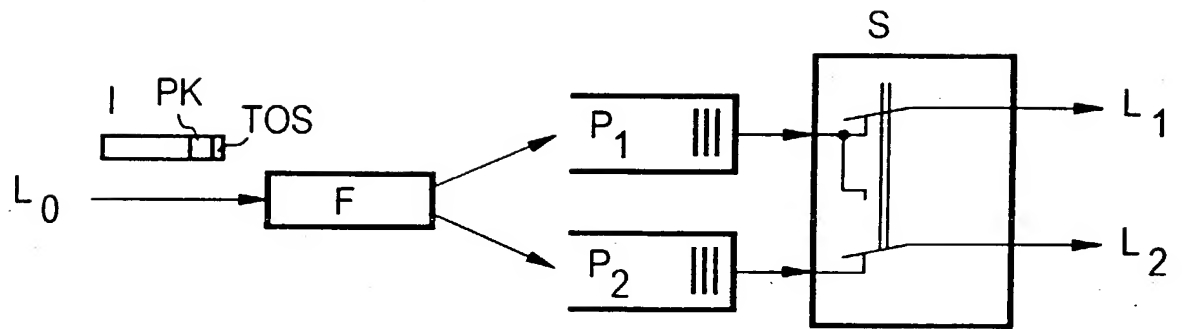
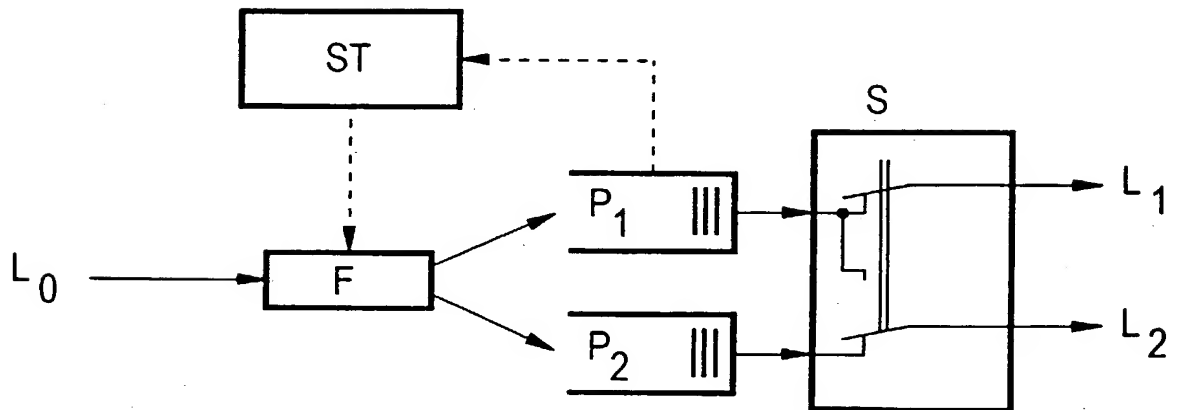


FIG 2



# Declaration and Power of Attorney For Patent Application

## Erklärung Für Patentanmeldungen Mit Vollmacht

### German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

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Verfahren zum Ersatzschalten von Übertragungseinrichtungen bei paketorientierter Übertragung

deren Beschreibung

(zutreffendes ankreuzen)

☒ hier beigefügt ist.

☐ am \_\_\_\_\_ als

PCT internationale Anmeldung

PCT Anmeldungsnummer \_\_\_\_\_

Eingereicht wurde und am \_\_\_\_\_

abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

(check one)

☐ is attached hereto.

☐ was filed on \_\_\_\_\_ as

PCT international application

PCT Application No. \_\_\_\_\_

and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:



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**CHANGE OF ADDRESS OF APPLICANTS' REPRESENTATIVE**

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INTERNATIONAL APPLICATION NO: PCT/EP00/06273  
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INVENTION: METHOD FOR THE SWITCHOVER TO STANDBY OF TRANSMISSION  
FACILITIES IN PACKET-ORIENTED TRANSMISSION


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